

REMARKS

By this amendment, claims 1, 3-5, 7-12, 14 and 15 have been amended, and claims 2 and 13 have been cancelled without prejudice or disclaimer. Support for the instant amendments may be found throughout the embodiments disclosed in the originally filed specification. No new matter have been added. Accordingly, claims 1, 3-12, and 14-32 remain pending, of which claims 16-30 and 32 have been withdrawn from consideration.

In view of the following comments, allowance of all the claims pending in the application is respectfully requested.

RESTRICTION REQUIREMENT

Applicant respectfully disagrees with the finality of the Restriction Requirement, maintains its traversal and reserves the right to petition the finality thereof or to file a divisional application drawn to the non-elected claims.

CLAIM OBJECTIONS

Claims 1 and 4 were objected to. Applicant has amended claims 1 and 14 to address these alleged informalities. Accordingly, withdrawal of the claim objections is earnestly sought.

REJECTIONS UNDER 35 U.S.C. §103

I. Claims 1, 3-4, 6, 8, 11 and 13 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,403,399 to Kurihara et al. ("Kurihara") in view of U.S. Patent No. 4,871,580 to Schram et al. ("Schram").

Applicant disagrees with the propriety of this rejection. However, solely to expedite prosecution, Application has amended independent claim 1 to further clarify the claimed subject matter.

Independent claim 1 recites, *inter alia*, the features of:

moving the cascade source and the plasma plume relative to the substrate surface while treating the substrate surface by controlling one or both of the first and the second motors so as to rotate the first housing part with the cascade source around one or both of the first and the second axes relative to the second housing part.

Applicant submits that the cited portions of Kurihara and Schram, either alone or in combination, do not teach or render obvious at least these features of claim 1.

For example, the Office Action asserts that Kurihara teaches that the plasma torch (115) and the substrate holder (119) containing the substrata can be controlled by manipulators (123, 127) to move the plasma jet relative to the substrate for growing a uniform film. *See* Office Action, page 4. However, the manipulators (123, 127), which appear to most closely correspond to the claimed motors, are located within the process chamber (121). *See, e.g.,* Kurihara, Figure 24.

By contrast, according to various aspects of Applicant's invention, the first and second motors are located outside of the process chamber. An advantage of this arrangement is that gases and dust particles that may be produced by the motors (e.g., by outgassing or ordinary wear) are kept outside of the process chamber and thus, cannot contaminate the process chamber and/or substrates being treated.

In addition, the Office Action *acknowledges* that "Kurihara et al. is silent to using a cascade source of the plasma source." Office Action, page 4.

Further, even assuming *arguendo* that the cited portions of Kurihara and Schram are properly combinable (which Applicant does not concede), the cited portions of Schram do not overcome the shortcomings of Kurihara.

For example, while the cited portions of Schram may teach a plasma chamber having a cascade source, the cited portions of Schram make no mention or suggest of moving the cascade source and the plasma plume relative to the substrate surface while treating the

substrate surface by controlling one or both of the first and the second motors so as to rotate the first housing part with the cascade source around one or both of the first and the second axes relative to the second housing part. Rather, in Schram the cascade source is fixed with respect to process chamber and substrate.

For at least the foregoing reasons, Applicant submits that a *prima facie* case of obviousness has not been established because the cited portions of Kurihara, Schram, or any proper combination thereof, do not teach or render obvious each and every feature of claim 1. Claims 1, 3-4, 6, 8 and 11 depend from claim 1 and are therefore patentable for the same reasons as claim 1, as well as for the additional features they recite individually. Claim 13 has been cancelled and therefore, the rejection thereof is moot. Accordingly, Applicant submits that the rejection of claim 1, 3-4, 6, 8, and 11 under 35 U.S.C. § 103(a) over Kurihara in view of Schram should be withdrawn and the claims be allowed.

II. Claims 2, 5, 12 and 15 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kurihara in view of Schram and further in view of U.S. Patent No. 6,068,201 to Hawley et al. ("Hawley"). Applicant traverses.

As discussed above, the cited portions of Kurihara and Schram do not teach or render obvious each and every feature of claim 1.

Further, even assuming *arguendo* that the cited portions of Kurihara, Schram and Hawley are properly combinable (which Applicant does not concede), Applicant submits that the cited portions of Hawley do not overcome the shortcomings of Kurihara and Schram.

For example, the cited portions of Hawley make no mention or suggestion of moving the cascade source and the plasma plume relative to the substrate surface while treating the substrate surface by controlling one or both of the first and the second motors so as to rotate the first housing part with the cascade source around one or both of the first and the second axes relative to the second housing part.

For at least the foregoing reasons, Applicant submits that a *prima facie* case of obviousness has not been established because the cited portions of Kurihara, Schram, Hawley or any proper combination thereof, do not teach or render obvious each and every feature of claim 1. Claims 5, 12 and 15 depend from claim 1 and are therefore patentable for the same reasons as claim 1, as well as for the additional features they recite individually. Claim 2 has been cancelled and therefore, the rejection thereof is moot. Accordingly, Applicant submits that the rejection of claims 5, 12 and 15 under 35 U.S.C. §103(a) over Kurihara in view of Schram and further in view of Hawley should be withdrawn and the claims be allowed.

III. Claims 7 and 9-10 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kurihara in view of Schram and further in view of U.S. Patent No. 6,490,994 to Yoshizawa ("Yoshizawa"). Applicant traverses.

As discussed above, the cited portions of Kurihara and Schram do not teach or render obvious each and every feature of claim 1.

Further, even assuming *arguendo* that the cited portions of Kurihara, Schram and Yoshizawa are properly combinable (which Applicant does not concede), Applicant submits that the cited portions of Yoshizawa do not overcome the shortcomings of Kurihara and Schram.

For example, while Yoshizawa may teach providing a bellows between first and second parts of the housing, it appears the first and second parts are only capable of being moved in a single vertical (translational) direction to optimize the drift region 31. See Yoshizawa, col. 6, line 65 – col. 7, line 5. However, the cited portions of Yoshizawa make no mention or suggestion of moving the cascade source and the plasma plume relative to the substrate surface while treating the substrate surface by ***controlling one or both of the first and the second motors so as to rotate the first housing part with the cascade source around one or both of the first and the second axes relative to the second housing part.***

By contrast, according to various aspects of Applicant's invention, by using the first and second motors, the cascade source can be independently controlled to move rotate around one

or both of the first and second axes. Thus, the source can specifically direct the plasma plume to different parts of the substrate surface. In this manner, the treatment and particularly its uniformity can be controlled very accurately, especially for different parts of the substrate. See, e.g., Applicant's Specification, page 2, line 27 - page 3, line 14.

For at least the foregoing reasons, Applicant submits that a *prima facie* case of obviousness has not been established because the cited portions of Kurihara, Schram, Yoshizawa or any proper combination thereof, do not teach or render obvious each and every feature of claim 1. Claims 7 and 9-10 depend from claim 1 and are therefore patentable for the same reasons as claim 1, as well as for the additional features they recite individually. Accordingly, Applicant submits that the rejection of claims 7 and 9-10 under 35 U.S.C. § 103(a) over Kurihara in view of Schram and further in view of Yoshizawa should be withdrawn and the claims be allowed.

IV. Claim 31 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kurihara in view of Schram, and further in view of U.S. Patent No. 6,397,776 to Yang et al. ("Yang"). Applicant traverses.

As discussed above, the cited portions of Kurihara and Schram do not teach or render obvious each and every feature of claim 1.

Further, even assuming *arguendo* that the cited portions of Kurihara, Schram and Yang are properly combinable (which Applicant does not concede), Applicant submits that the cited portions of Yang do not overcome the shortcomings of Kurihara and Schram.

For example, the cited portions of Yang make no mention or suggestion of moving the cascade source and the plasma plume relative to the substrate surface while treating the substrate surface by controlling one or both of the first and the second motors so as to rotate the first housing part with the cascade source around one or both of the first and the second axes relative to the second housing part.

For at least the foregoing reasons, Applicant submits that a *prima facie* case of obviousness has not been established because the cited portions of Kurihara, Schram, Yang or any proper combination thereof, do not teach or render obvious each and every feature of claim 1. Claim 31 depends from claim 1 and is therefore patentable for the same reasons as claim 1, as well as for the additional features it recites individually. Accordingly, Applicant submits that the rejection of claim 31 under 35 U.S.C. § 103(a) over Kurihara in view of Schram and further in view of Yang should be withdrawn and the claim be allowed.

V. Claim 14 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kurihara in view of Schram, and further in view of U.S. Patent No. 6,051,114 to Yao et al. ("Yao"). Applicant traverses.

As discussed above, the cited portions of Kurihara and Schram do not teach or render obvious each and every feature of claim 1.

Further, even assuming *arguendo* that the cited portions of Kurihara, Schram and Yao are properly combinable (which Applicant does not concede), Applicant submits that the cited portions of Yao do not overcome the shortcomings of Kurihara and Schram.

For example, the cited portions of Yao make no mention or suggestion of moving the cascade source and the plasma plume relative to the substrate surface while treating the substrate surface by controlling one or both of the first and the second motors so as to rotate the first housing part with the cascade source around one or both of the first and the second axes relative to the second housing part.

For at least the foregoing reasons, Applicant submits that a *prima facie* case of obviousness has not been established because the cited portions of Kurihara, Schram, Yao or any proper combination thereof, do not teach or render obvious each and every feature of claim 1. Claim 14 depends from claim 1 and is therefore patentable for the same reasons as claim 1, as well as for the additional features it recites individually. Accordingly, Applicant

submits that the rejection of claim 14 under 35 U.S.C. § 103(a) over Kurihara in view of Schram and further in view of Yao should be withdrawn and the claim be allowed.

DOUBLE PATENTING REJECTIONS

In the Office Action:

I. Claims 1, 3-4, 6-10 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 51-83 of copending Application No. 10/518,695 ("the '695 application") in view of Yoshizawa;

II. Claims 1, 3, 4, 6-10 and 31 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1-19 of copending Application No. 10/583,914 ("the '914 application") in view of Yoshizawa;

III. Claims 1, 3, 4 and 6-10 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1-20 of U.S. Patent No. 6,946,404 ("the '404 patent") in view of Yoshizawa;

IV. Claims 1, 3, 4 and 6-10 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 53-58 of copending Application No. 10/557,043 ("the '043 application") in view of Yoshizawa.

Applicant traverses each of these double patenting rejections. For example, Applicant submits that the claims, *as amended*, are not the same or substantially the same as the claims in the '695 application, the '914 application, the '404 patent or the '043 application.

Moreover, as discussed above, the cited portions of Yoshizawa do not cure these deficiencies either.

For at least the foregoing reasons, Applicant submits that each of these double patenting rejections should be withdrawn and the claims be allowed.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

If an extension of time is necessary to prevent abandonment of this application, then such an extension of time is hereby petitioned for under 37 C.F.R. §1.136(a). Any fees required (including fees for net addition of claims) are hereby authorized to be charged to our **Deposit Account No. 033975** (Ref. No. **008895-0316415**).

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Respectfully submitted,

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